NEUROSCIENCE

An International Journal under the editorial direction of IBRO

Volume 62, 1994

TITLE SECTION
LIST OF CONTENTS
AND AUTHOR INDEX

PERGAMON

NEUROSCIENCE

Chief Editors

P. G. KOSTYUK: *Department of General Physiology, A. A. Bogomoletz Institute of Physiology, Academy of Sciences, 4 Bogomoletz Street, Kiev 24, 252601 GSP, Ukraine*

R. LLINÁS: *Department of Physiology and Biophysics, New York University School of Medicine, 550 First Avenue, New York 10016, U.S.A.*

A. D. SMITH: *Department of Pharmacology, University of Oxford, Mansfield Road, Oxford OX1 3QT, U.K.*

Editorial Board

G. ASTON-JONES (*Philadelphia, PA*)
A. BJÖRKLUND (*Lund*)
A. BLIGHT (*Chapel Hill, NA*)
T. V. P. BLISS (*London*)
J. P. BOLAM (*Oxford*)
A. G. BROWN (*Edinburgh*)
M. C. BROWN (*Oxford*)
J. BUREŠ (*Prague*)
G. BUZSÁKI (*Newark, NJ*)
A. L. BYSOV (*Moscow*)
D. W. CHOI (*St Louis, MO*)
A. CONSTANTI (*London*)
M. COSTA (*Adelaide*)
J. T. COYLE (*Belmont, MA*)
W. CRILL (*Seattle, WA*)
A. C. CUELLO (*Montreal*)
A. C. DOLPHIN (*London*)
F. E. DUDEK (*Fort Collins, CO*)
A. W. DUGGAN (*Edinburgh*)
S. B. DUNNETT (*Cambridge*)
D. EDGAR (*Liverpool*)
M. M. ESIRI (*Oxford*)
R. H. EVANS (*Bristol*)
D. S. FABER (*Philadelphia, PA*)
V. V. FANARDJIAN (*Yerevan*)
R. L. M. FAULL (*Auckland*)
R. FISCHER-COLBRIE (*Innsbruck*)
T. F. FREUND (*Budapest*)
G. GABELLA (*London*)
F. H. GAGE (*La Jolla, CA*)
J. GARTHWAITE (*Beckenham*)
C. R. GERFEN (*Bethesda, MD*)
H. M. GERSCHENFELD (*Paris*)
J. GLOWINSKI (*Paris*)
J. A. GRAY (*London*)
A. M. GRAYBIEL (*Cambridge, MA*)
H. J. GROENEWEGEN (*Amsterdam*)
R. W. GUILLERY (*Oxford*)
M. HAMON (*Paris*)
F. F. HEFTI (*South San Francisco, CA*)
L. HEIMER (*Charlottesville, VA*)
Z. HENDERSON (*Leeds*)
J. HERBERT (*Cambridge*)
M. HERKENHAM (*Bethesda, MD*)
D. E. HILLMAN (*New York, NY*)
T. HÖKFELT (*Stockholm*)
P. HOLZER (*Graz*)
O. HORNYKIEWICZ (*Vienna*)
J. HOUNSGAARD (*Copenhagen*)
S. P. HUNT (*Cambridge*)
H. JAHNSEN (*Copenhagen*)
B. E. JONES (*Montreal*)
E. G. JONES (*Irvine, CA*)
G. JU (*Xi'an*)
J. S. KELLY (*Edinburgh*)
B. I. KHODOROV (*Moscow*)
S. T. KITAI (*Memphis, TN*)
C. KÖHLER (*Basel*)
T. KOSAKA (*Fukuoka*)
O. A. KRISHTAL (*Kiev*)
S. N. LAWSON (*Bristol*)
J. D. LEVINE (*San Francisco, CA*)
C. A. MARSDEN (*Nottingham*)
M. R. MATTHEWS (*Oxford*)
A. I. MATUS (*Basle*)
J. F. MORRIS (*Oxford*)
É. MUGNAINI (*Storrs, CT*)
T. ONO (*Toyama*)
F. ORREGO (*Santiago*)
J. M. PALACIOS (*Barcelona*)
S. L. PALAY (*Concord, MA*)
V. H. PERRY (*Oxford*)
J. M. POLAK (*London*)
P. RAKIC (*New Haven, CA*)
H. J. RALSTON (*San Francisco, CA*)
S. J. REDMAN (*Canberra*)
T. S. REESE (*Bethesda, MD*)
F. REINOSO-SUÁREZ (*Madrid*)
L. P. RENAUD (*Ottawa*)
M. RÉTHELYI (*Budapest*)
P. J. ROBERTS (*Bristol*)
H. A. ROBERTSON (*Halifax, N.S.*)
S. M. SHERMAN (*Stony Brook, NY*)
M. L. SHIK (*Moscow*)
S. SNYDER (*Baltimore, MD*)
M. V. SOFRONIEW (*Cambridge*)
P. SOMOGYI (*Oxford*)
C. SOTELO (*Paris*)
K. STARKE (*Freiburg*)
M. S. STARR (*London*)
M. STERIADE (*Québec*)
L. STJÄRNE (*Stockholm*)
K. SUZUKI (*Chapel Hill, NC*)
D. T. THEODOSIS (*Bordeaux*)
A. M. THOMSON (*London*)
K. UNSICKER (*Heidelberg*)
S. R. VINCENT (*Vancouver*)
J. VOOGD (*Rotterdam*)
L. VYKLICKY (*Prague*)
K. D. WALTON (*New York, NY*)
X. S. T. WAN (*Beijing*)
K. WICTORIN (*Lund*)
W. D. WILLIS (*Galveston, TX*)
H. WINKLER (*Innsbruck*)
D. J. WOODWARD (*Winston-Salem, NC*)
H. ZIMMERMANN (*Frankfurt*)
C. ZUCKER (*Boston, MA*)

IBRO Publications Committee

Chairman, A. D. SMITH; C. BLAKEMORE, R. LLINÁS, D. G. R. OTTOSON, D. P. PURPURA, P. G. STRATA.

Production Editors: M. DAVIES, J. F. MOWBRAY, J. M. WALL. *Editorial Assistants*: S. J. RUSSELL (U.K.), P. BLAIKIE (U.S.).

Published 24 *per annum, semi-monthly* (*six volumes*, 1994)

Publishing, Subscription and Advertising Offices:

The Boulevard, Langford Lane, Kidlington, Oxford OX5 1GB, U.K. [*Tel*: (0865) 843000; *Fax*: (0865) 843010]

Subscription Rates

Annual institutional subscription rate (1994) *North, Central and South America, U.S.*$3487; *Rest of World*, £2340. *Associated Personal Subscription Rates are available on request for those whose institutions are library subscribers. Sterling prices exclude VAT. Non-VAT registered customers in the European Community will be charged the appropriate VAT in addition to the price listed. Prices include postage and insurance and are subject to change without notice. Members of the International Brain Research Organization may order personal subscriptions at a concessional rate and details of these rates are available on request. Airmail Subscription extra. Subscription enquiries from customers in North America should be sent to: Elsevier Science Inc., 660 White Plains Road, Tarrytown, NY 10591-5153, U.S.A., and for the remainder of the world to: Elsevier Science Ltd, The Boulevard, Langford Lane, Kidlington, Oxford OX5 1GB, U.K. Tel*: (01865) 843000; *Fax*: (01865) 843010.

Disclaimer. Whilst every effort is made by the Publishers and Editorial Board to see that no inaccurate or misleading data, opinion or statement appear in this Journal, they wish to make it clear that the data and opinions appearing in the articles and advertisements herein are the sole responsibility of the contributor or advertiser concerned. Accordingly, the Publishers, the Editorial Board and Editors and their respective employees, officers and agents accept no responsibility or liability whatsoever for the consequences of any such inaccurate or misleading data, opinion or statement.

Second class postage paid at Newark, NJ, and additional Mailing Offices. Postmaster send address corrections to *Neuroscience*, c/o Elsevier Science Inc., 660 White Plains Road, Tarrytown, NY 10591-5153, U.S.A.

Copyright © 1994 IBRO

Front cover illustration: Section of a nerve in the spinal cord of the ox, reproduced by permission of the Bodleian Library, Oxford from Antoni van Leeuwenhoek, *Epistolae physiologicae super compluribus naturae arcanis*, Figure 2 facing page 312. A. Beman, Delft, 1719.

LIST OF CONTENTS

VOLUME 62 NUMBER 1 — 1994

J. C. Vickers, B. M. Riederer, R. A. Marugg, V. Buée-Scherrer, L. Buée, A. Delacourte and **J. H. Morrison**	Alterations in neurofilament protein immunoreactivity in human hippocampal neurons related to normal aging and Alzheimer's disease	1
J. Saura, J. M. Luque, A. M. Cesura, M. Da Prada, V. Chan-Palay, G. Huber, J. Löffler and **J. G. Richards**	Increased monoamine oxidase B activity in plaque-associated astrocytes of Alzheimer brains revealed by quantitative enzyme radioautography	15
D. M. Lovinger, A. Merritt and **D. Reyes**	Involvement of N- and non-N-type calcium channels in synaptic transmission at corticostriatal synapses	31
S. R. White, P. Duffy and **P. W. Kalivas**	Methylenedioxymethamphetamine depresses glutamate-evoked neuronal firing and increases extracellular levels of dopamine and serotonin in the nucleus accumbens *in vivo*	41
W. L. Inglis, J. S. Dunbar and **P. Winn**	Outflow from the nucleus accumbens to the pedunculopontine tegmental nucleus: a dissociation between locomotor activity and the acquisition of responding for conditioned reinforcement stimulated by *d*-amphetamine	51
U. B. Schambra, G. E. Duncan, G. R. Breese, M. G. Fornaretto, M. G. Caron and **R. T. Fremeau Jr**	Ontogeny of D_{1A} and D_2 dopamine receptor subtypes in rat brain using *in situ* hybridization and receptor binding	65
M. Miele, M. G. Boutelle and **M. Fillenz**	The physiologically induced release of ascorbate in rat brain is dependent on impulse traffic, calcium influx and glutamate uptake	87
A. Parducz, F. Loctin, E. Babel-Guérin and **Y. Dunant**	Exo-endocytotic activity during recovery from a brief tetanic stimulation: a role in calcium extrusion?	93
J. Toldi, I. Rojik and **O. Fehér**	Neonatal monocular enucleation-induced cross-modal effects observed in the cortex of adult rat	105
J. A. Lamas, L. Martinez and **A. Canedo**	Pericruciate fibres to the red nucleus and to the medial bulbar reticular formation	115
R. J. Valentino, M. E. Page, P.-H. Luppi, Y. Zhu, E. Van Bockstaele and **G. Aston-Jones**	Evidence for widespread afferents to Barrington's nucleus, a brainstem region rich in corticotropin-releasing hormone neurons	125
J.-L. Yue, H. Okamura, Y. Goshima, S. Nakamura, M. Geffard and **Y. Misu**	Baroreceptor-aortic nerve-mediated release of endogenous L-3,4-dihydroxyphenylalanine and its tonic depressor function in the nucleus tractus solitarii of rats	145
H. Xiong and **K. C. Marshall**	Angiotensin II depresses glutamate depolarizations and excitatory postsynaptic potentials in locus coeruleus through angiotensin II subtype 2 receptors	163
V. V. Stezhka and **T. A. Lovick**	Inhibitory and excitatory projections from the dorsal raphe nucleus to neurons in the dorsolateral periaqueductal gray matter in slices of midbrain maintained *in vitro*	177
A. Modin, E. Weitzberg T. Hökfelt and **J. M. Lundberg**	Nitric oxide synthase in the pig autonomic nervous system in relation to the influence of N^G-nitro-L-arginine on sympathetic and parasympathetic vascular control *in vivo*	189

D. Spanswick, A. E. Pickering, I. C. Gibson and **S. D. Logan**	Inhibition of sympathetic preganglionic neurons by spinal glycinergic interneurons	205
Å. Dagerlind, M. Pelto-Huikko, J. M. Lundberg, R. Ubink, A. Verhofstad, S. Brimijoin and **T. Hökfelt**	Immunologically induced sympathectomy of preganglionic nerves by antibodies against acetylcholinesterase: increased levels of peptides and their messenger RNAs in rat adrenal chromaffin cells	217
P. A. Steele, I. L. Gibbins, J. L. Morris and **B. Mayer**	Multiple populations of neuropeptide-containing intrinsic neurons in the guinea-pig heart	241
W. Z. Shen, C. B. Luo, L. Dong, W. Y. Chan and **D. T. Yew**	Distribution of neuropeptide Y in the developing human spinal cord	251
I. Nitsos, P. M. Sexton and **S. Rees**	The ontogeny of [^{125}I]rat-α-CGRP binding sites in the spinal cord of sheep: a prenatal and postnatal study	257
V. K. Patchev, M. Shoaib, F. Holsboer and **O. F. X. Almeida**	The neurosteroid tetrahydroprogesterone counteracts corticotropin-releasing hormone-induced anxiety and alters the release and gene expression of corticotropin-releasing hormone in the rat hypothalamus	265
S. M. Biello, D. Janik and **N. Mrosovsky**	Neuropeptide Y and behaviorally induced phase shifts	273
J. A. Keja and **K. S. Kits**	Voltage dependence of G-protein-mediated inhibition of high-voltage-activated calcium channels in rat pituitary melanotropes	281
L. Bonfanti and **D. T. Theodosis**	Expression of polysialylated neural cell adhesion molecule by proliferating cells in the subependymal layer of the adult rat, in its rostral extension and in the olfactory bulb	291
M. A. Morency, R. Quirion and **R. K. Mishra**	Distribution of cholecystokinin receptors in the bovine brain: a quantitative autoradiographic study	307
E. Maubert, A. Slama, P. Ciofi, C. Viollet, G. Tramu, J.-P. Dupouy and **J. Epelbaum**	Developmental patterns of somatostatin-receptors and somatostatin-immunoreactivity during early neurogenesis in the rat	317

VOLUME 62 NUMBER 2 1994

LETTERS TO NEUROSCIENCE

C. J. Woolf, B. Safieh-Garabedian, Q.-P. Ma, P. Crilly and **J. Winter**	Nerve growth factor contributes to the generation of inflammatory sensory hypersensitivity	327
A. Faivre-Bauman, C. Loudes, I. Neveu, P. Naveilhan, G. Vantini, J. Epelbaum and **B. Onteniente**	Decreased choline acetyltransferase activity in nerve growth factor-transgenic mice during brain development	333

RESEARCH PAPERS

P. Fernyhough, L. T. Diemel, W. J. Brewster and **D. R. Tomlinson**	Deficits in sciatic nerve neuropeptide content coincide with a reduction in target tissue nerve growth factor messenger RNA in streptozotocin-diabetic rats: effects of insulin treatment	337
S. G. Khasar, T. Ho, P. G. Green and **J. D. Levine**	Comparison of prostaglandin E_1- and prostaglandin E_2-induced hyperalgesia in the rat	345
M. B. Bauer, S. Murphy and **G. F. Gebhart**	Muscarinic cholinergic stimulation of the nitric oxide–cyclic GMP signaling system in cultured rat sensory neurons	351

A. Lachmund, D. Gehrke, K. Krieglstein and **K. Unsicker**	Trophic factors from chromaffin granules promote survival of peripheral and central nervous system neurons	361
R. D. Andrew and **B. A. Macvicar**	Imaging cell volume changes and neuronal excitation in the hippocampal slice	371
A. de Mendonça and **J. A. Ribeiro**	Endogenous adenosine modulates long-term potentiation in the hippocampus	385
U. Kuhnt and **L. L. Voronin**	Interaction between paired-pulse facilitation and long-term potentiation in area CA1 of guinea-pig hippocampal slices: application of quantal analysis	391
F. E. Jensen, G. J. Gardner, A. P. Williams, P. M. Gallop, E. Aizenman and **P. A. Rosenberg**	The putative essential nutrient pyrroloquinoline quinone is neuroprotective in a rodent model of hypoxic/ischemic brain injury	399
D. J. S. Sirinathsinghji, R. Schuligoi, R. P. Heavens, A. Dixon, S. D. Iversen and **R. G. Hill**	Temporal changes in the messenger RNA levels of cellular immediate early genes and neurotransmitter/receptor genes in the rat neostriatum and substantia nigra after acute treatment with eticlopride, a dopamine D_2 receptor antagonist	407
H.-W. Cheng, T. Jiang, S. A. Brown, G. M. Pasinetti, C. E. Finch and **T. H. McNeill**	Response of striatal astrocytes to neuronal deafferentation: an immunocytochemical and ultrastructural study	425
S. Hernández-López, J. L. Góngora-Alfaro, D. Martínez-Fong, M. G. Rosales and **J. Aceves**	Cholinergic stimulation of rostral and caudal substantia nigra pars compacta produces opposite effects on circling behavior and striatal dopamine release measured by brain microdialysis	441
A. Kastner, P. Anglade, C. Bounaix, P. Damier, F. Javoy-Agid, N. Bromet, Y. Agid and **E. C. Hirsch**	Immunohistochemical study of catechol-*O*-methyltransferase in the human mesostriatal system	449
J. P. Segundo, M. Stiber, E. Altshuler and **J.-F. Vibert**	Transients in the inhibitory driving of neurons and their postsynaptic consequences	459
M. J. Young and **R. D. Lund**	The anatomical substrates subserving the pupillary light reflex in rats: origin of the consensual pupillary response	481
J. D. Mikkelsen and **N. Vrang**	A direct pretectosuprachiasmatic projection in the rat	497
Y. Nakatsuka, M. Watanabe, T. H. Murakami, T. Negi, T. Itano and **M. Shimada**	Ipsilateral motor control of the forelimb in the congenitally acallosal mouse	507
P. Fan	Facilitation of 5-hydroxytryptamine$_3$ receptor desensitization by fluoxetine	515
R. Shiekhattar and **G. Aston-Jones**	Activation of adenylate cyclase attenuates the hyperpolarization following single action potentials in brain noradrenergic neurons independently of protein kinase A	523
P. Weldon, M. Bachoo and **C. Polosa**	The role of tonic preganglionic neuron firing in the turnover of the large dense-cored vesicle store in sympathetic preganglionic nerve terminals	531
H. Wang, C. Rivero-Melián, B. Robertson and **G. Grant**	Transganglionic transport and binding of the isolectin B4 from *Griffonia simplicifolia* I in rat primary sensory neurons	539

P. M. Sexton, G. Paxinos, M. A. Kenney, P. J. Wookey and **K. Beaumont**	*In vitro* autoradiographic localization of amylin binding sites in rat brain	553
T. M. Dawson, J. P. Steiner, W. E. Lyons, M. Fotuhi, M. Blue and **S. H. Snyder**	The immunophilins, FK506 binding protein and cyclophilin, are discretely localized in the brain: relationship to calcineurin	569
V. L. Arvanov, H. H. Liou, Y. C. Chang, R. C. Chen, F. C. Peng, K. H. Ling and **M. C. Tsai**	Interactions of anticholinesterases with *Achatina fulica* acetylcholine responses and electrogenic sodium pump	581
O. Stettler, K. L. Moya, A. Zahraoui and **B. Tavitian**	Developmental changes in the localization of the synaptic vesicle protein rab3A in rat brain	587
S. M. Turgeon and **R. L. Albin**	Postnatal ontogeny of $GABA_B$ binding in rat brain	601
M. S. Grace and **J. C. Besharse**	Melatonin deacetylase activity in the pineal gland and brain of the lizards *Anolis carolinensis* and *Sceloporus jarrovi*	615

VOLUME 62 NUMBER 3 1994

LETTERS TO NEUROSCIENCE

J. D. Cooper, D. Lindholm and **M. V. Sofroniew**	Reduced transport of [^{125}I]nerve growth factor by cholinergic neurons and down-regulated TrkA expression in the medial septum of aged rats	625
H. W. G. M. Boddeke, I. Meigel, R. Swoboda and **P. H. Boeijinga**	The amyloid precursor protein fragment His 657-Lys 676 inhibits noradrenaline- and enkephaline-induced suppression of voltage sensitive calcium currents in NG108-15 hybrid cells	631
C. Le Moine, B. Kieffer, C. Gaveriaux-Ruff, K. Befort and **B. Bloch**	Delta-opioid receptor gene expression in the mouse forebrain: localization in cholinergic neurons of the striatum	635
K. Chergui, M. F. Suaud-Chagny and **F. Gonon**	Nonlinear relationship between impulse flow, dopamine release and dopamine elimination in the rat brain *in vivo*	641

RESEARCH PAPERS

C. Dugast, M. F. Suaud-Chagny and **F. Gonon**	Continuous *in vivo* monitoring of evoked dopamine release in the rat nucleus accumbens by amperometry	647
M. Avoli, D. Mattia, A. Siniscalchi, P. Perreault and **F. Tomaiuolo**	Pharmacology and electrophysiology of a synchronous GABA-mediated potential in the human neocortex	655
S. Rajdev and **I. J. Reynolds**	Glutamate-induced intracellular calcium changes and neurotoxicity in cortical neurons *in vitro*: effect of chemical ischemia	667
T. P. Durkin	Spatial working memory over long retention intervals: dependence on sustained cholinergic activation in the septohippocampal or nucleus basalis magnocellularis–cortical pathways?	681
S. Goto, K. Yamada, T. Oyama, K. Korematsu, S. Nagahiro, Y. Ushio, K. Fukunaga, E. Miyamoto and **W. Hofer**	Cellular localization of type II Ca^{2+}/calmodulin-dependent protein kinase in the rat basal ganglia and intrastriatal grafts derived from fetal striatal primordia, in comparison with that of Ca^{2+}/calmodulin-regulated protein phosphatase, calcineurin	695
B. D. Bennett and **J. P. Bolam**	Synaptic input and output of parvalbumin-immunoreactive neurons in the neostriatum of the rat	707

C. Gérard, X. Langlois, J. Gingrich, E. Doucet, D. Vergé, H. K. Kia, R. Raisman, H. Gozlan, S. El Mestikawy and **M. Hamon**	Production and characterization of polyclonal antibodies recognizing the intracytoplasmic third loop of the 5-hydroxytryptamine$_{1A}$ receptor	721
I. Rozovsky, T. E. Morgan, D. A. Willoughby, M. M. Dugich-Djordjevich, G. M. Pasinetti, S. A. Johnson and **C. E. Finch**	Selective expression of clusterin (SGP-2) and complement C1qB and C4 during responses to neurotoxins *in vivo* and *in vitro*	741
C. L. Ehlers, W. M. Kaneko, P. Robledo and **A. L. Lopez**	Long-latency event-related potentials in rats: effects of task and stimulus parameters	759
M. Ya. Voloshin, E. P. Lukhanina, B. P. Kolomietz, V. F. Prokopenko and **V. A. Rodionov**	Electrophysiological investigation of thalamic neuronal mechanisms of motor disorders in Parkinsonism: an influence of D_2ergic transmission blockade on excitation and inhibition of relay neurons in motor thalamic nuclei of cat	771
R. Mihai, M. Coculescu, J. B. Wakerley and **C. D. Ingram**	The effects of [Arg^8]vasopressin and [Arg^8]vasotocin on the firing rate of suprachiasmatic neurons *in vitro*	783
K. Yamada, S. Goto and **Y. Ushio**	Occurrence of heat shock response in deafferented neurons in the substantia nigra of rats	793
S. Sashihara, N. Yanagihara, F. Izumi, Y. Murai and **T. Mita**	Differential up-regulation of voltage-dependent Na^+ channels induced by phenytoin in brains of genetically seizure-susceptible (E1) and control (ddY) mice	803
A. Stelzer and **H. Shi**	Impairment of $GABA_A$ receptor function by *N*-methyl-D-aspartate-mediated calcium influx in isolated CA1 pyramidal cells	813
J. M. Hiller, Y. Zhang, G. Bing, T. L. Gioannini, E. A. Stone and **E. J. Simon**	Immunohistochemical localization of mu-opioid receptors in rat brain using antibodies generated against a peptide sequence present in a purified mu-opioid binding protein	829
A. Cintra, M. Zoli, L. Rosén, L. F. Agnati, S. Okret, A.-C. Wikström, J.-Å. Gustafsson and **K. Fuxe**	Mapping and computer assisted morphometry and microdensitometry of glucocorticoid receptor immunoreactive neurons and glial cells in the rat central nervous system	843
R. H. Zetterström, A. Simon, M. M. J. Giacobini, U. Eriksson and **L. Olson**	Localization of cellular retinoid-binding proteins suggests specific roles for retinoids in the adult central nervous system	899
Y. Sugimoto, R. Shigemoto, T. Namba, M. Negishi, N. Mizuno, S. Narumiya and **A. Ichikawa**	Distribution of the messenger RNA for the prostaglandin E receptor subtype EP_3 in the mouse nervous system	919
H. K. Happe, J. L. Peters, D. A. Bergman and **L. C. Murrin**	Localization of nicotinic cholinergic receptors in rat brain: autoradiographic studies with [^{3}H]cytisine	929
J.-C. David, R. W. Currie and **H. A. Robertson**	Expression and distribution of *hsp*71 and *hsc*73 messenger RNAs in rat brain following heat shock: effect of dizocilpine maleate	945
K. Zavitsanou, A. Mitsacos and **E. D. Kouvelas**	Autoradiographic characterization of [^{3}H]6-cyano-7-nitroquinoxaline-2,3-dione binding sites in adult chick brain	955
A. Aubert, C. H. Norris and **P. S. Guth**	Influence of ATP and ATP agonists on the physiology of the isolated semicircular canal of the frog (*Rana pipiens*)	963

VOLUME 62 NUMBER 4 1994

LETTERS TO NEUROSCIENCE

G. Köhr and **I. Mody** — Kindling increases *N*-methyl-D-aspartate potency at single *N*-methyl-D-aspartate channels in dentate gyrus granule cells — 975

V. N. Kharazia, H. H. H. W. Schmidt and **R. J. Weinberg** — Type I nitric oxide synthase fully accounts for NADPH-diaphorase in rat striatum, but not cortex — 983

COMMENTARIES

P. Pakzaban and **O. Isacson** — Neural xenotransplantation: reconstruction of neuronal circuitry across species barriers — 989

C. J. C. Boersma and **F. W. Van Leeuwen** — Neuron–glia interactions in the release of oxytocin and vasopressin from the rat neural lobe: the role of opioids, other neuropeptides and their receptors — 1003

RESEARCH PAPERS

A. M. Pugliese, L. Ballerini, M. B. Passani and **R. Corradetti** — EPSP-spike potentiation during primed burst-induced long-term potentiation in the CA1 region of rat hippocampal slices — 1021

M. G. Lee, J. J. Chrobak, A. Sik, R. G. Wiley and **G. Buzsáki** — Hippocampal theta activity following selective lesion of the septal cholinergic system — 1033

F. M. Inglis, J. C. Day and **H. C. Fibiger** — Enhanced acetylcholine release in hippocampus and cortex during the anticipation and consumption of a palatable meal — 1049

I. I. Grichtchenko and **M. Chesler** — Depolarization-induced acid secretion in gliotic hippocampal slices — 1057

I. I. Grichtchenko and **M. Chesler** — Depolarization-induced alkalinization of astrocytes in gliotic hippocampal slices — 1071

F. R. Sharp, M. Butman, J. Koistinaho, K. Aardalen, R. Nakki, S. M. Massa, R. A. Swanson and **S. M. Sagar** — Phencyclidine induction of the *hsp*70 stress gene in injured pyramidal neurons is mediated via multiple receptors and voltage gated calcium channels — 1079

P. Krappmann, R. U. Hasenöhrl, C. Frisch and **J. P. Huston** — Self-administration of neurokinin substance P into the ventromedial caudate–putamen in rats — 1093

R. J. Maslowski-Cobuzzi and **T. C. Napier** — Activation of dopaminergic neurons modulates ventral pallidal responses evoked by amygdala stimulation — 1103

S. Marty and **M. Peschanski** — Fine structural alteration in target-deprived axonal terminals in the rat thalamus — 1121

F. Rothe, M. Brosz and **J. Storm-Mathisen** — Quantitative ultrastructural localization of glutamate dehydrogenase in the rat cerebellar cortex — 1133

A. Laquerriere, P. Leroux, C. Bodenant, B. Gonzalez, J. Tayot and **H. Vaudry** — Quantitative autoradiographic study of somatostatin receptors in the adult human cerebellum — 1147

C. J. Holmes, L. S. Mainville and **B. E. Jones** — Distribution of cholinergic, GABAergic and serotonergic neurons in the medial medullary reticular formation and their projections studied by cytotoxic lesions in the cat — 1155

C. J. Holmes and **B. E. Jones** — Importance of cholinergic, GABAergic, serotonergic and other neurons in the medial medullary reticular formation for sleep–wake states studied by cytotoxic lesions in the cat — 1179

C. Garcia, D. Marcel, M. Le Cavorsin, J.-F. Pujol and **D. Weissmann**	Phenotypic characteristics of expressed tyrosine hydroxylase protein in the adult rat nucleus tractus solitarius: plasticity revealed by RU24722 treatment	1201
C. D. Balaban and **G. Beryozkin**	Organization of vestibular nucleus projections to the caudal dorsal cap of Kooy in rabbits	1217
I. N. Pigarev	Neurons of visual cortex respond to visceral stimulation during slow wave sleep	1237
S. Mihara and **S. Nishi**	Neurokinin A mimics the slow excitatory postsynaptic current in submucous plexus neurons of the guinea-pig caecum	1245
K. N. Browning and **G. M. Lees**	Reappraisal of the innervation of rat intestine by vasoactive intestinal polypeptide and neuropeptide Y-immunoreactive neurons	1257
D. A. Carter	A daily rhythm of activator protein-1 activity in the rat pineal is dependent upon trans-synaptic induction of JunB	1267
J. Dymshitz and **M. R. Vasko**	Nitric oxide and cyclic guanosine 3′,5′-monophosphate do not alter neuropeptide release from rat sensory neurons grown in culture	1279
P. Fan and **F. F. Weight**	The effect of atropine on the activation of 5-hydroxytryptamine$_3$ channels in rat nodose ganglion neurons	1287
H.-G. Schaible, U. Freudenberger, V. Neugebauer and **R. U. Stiller**	Intraspinal release of immunoreactive calcitonin gene-related peptide during development of inflammation in the joint *in vivo*—a study with antibody microprobes in cat and rat	1293
BOOK REVIEWS		
R. W. Guillery	*Thalamic Networks for Relay and Modulation*. Edited by D. Minciacchi, M. Molinari, G. Macchi and E. G. Jones	1307
K. Starke	*Presynaptic Receptors in the Mammalian Brain*. Edited by T. V. Dunwiddie and D. M. Lovinger	1308
A. C. Dolphin	*The G Protein-Linked Receptor Facts Book*. Edited by S. Watson and S. Arkinstall	1309
S. A. Jones	*Trophic Regulation of the Basal Ganglia Focus on Dopamine Neurons*. Edited by K. Fuxe, B. Bjelke, L. F. Agnati and D. Ottoson	1309

AUTHOR INDEX

Aardalen K., 1079
Aceves J., 441
Agid Y., 449
Agnati L. F., 843
Aizenman E., 399
Albin R. L., 601
Almeida O. F. X., 265
Altshuler, E., 459
Andrew R. D., 371
Anglade P., 449
Arvanov V. L., 581
Aston-Jones G., 125, 523
Aubert A., 963
Avoli M., 655

Babel-Guerin E., 93
Bachoo M., 531
Balaban C. D., 1217
Ballerini L., 1021
Bauer M. B., 351
Beaumont K., 553
Befort K., 635
Bennett B. D., 707
Bergman D. A., 929
Beryozkin G., 1217
Besharse J. C., 615
Biello S. M., 273
Bing G., 829
Bloch B., 635
Blue M., 569
Boddeke H. W. G. M., 631
Bodenant C., 1147
Boeijinga P. H., 631
Boersma C. J. C., 1003
Bolam J. P., 707
Bonfanti L., 291
Bounaix C., 449
Boutelle M. G., 87
Breese G. R., 65
Brewster W. J., 337
Brimijoin S., 217
Bromet N., 449
Brosz M., 1133
Brown S. A., 425
Browning K. N., 1257
Buée L., 1
Buée-Scherrer V., 1
Butman M., 1079
Buzsáki G., 1033

Canedo A., 115
Caron M. G., 65
Carter D. A., 1267
Cesura A. M., 15
Chan W. Y., 251
Chan-Palay V., 15
Chang Y. C., 581
Chen R. C., 581
Cheng H.-W., 425
Chergui K., 641
Chesler M., 1057, 1071
Chrobak J. J., 1033
Cintra A., 843
Ciofi P., 317
Coculescu M., 783
Cooper J. D., 625
Corradetti R., 1021
Crilly P., 327
Currie R. W., 945

Da Prada M., 15
Dagerlind Å., 217
Damier P., 449
David J.-C., 945
Dawson T. M., 569
Day J. C., 1049
Delacourte A., 1
Diemel L. T., 337
Dixon A., 407
Dolphin A. C., 1311
Dong L., 251
Doucet E., 721
Duffy P., 41
Dugast C., 647
Dugich-Djordjevich M. M., 741
Dunant Y., 93
Dunbar J. S., 51
Duncan G. E., 65
Dupouy J.-P., 317
Durkin T. P., 681
Dymshitz J., 1279

Ehlers C. L., 759
El Mestikawy S., 721
Epelbaum J., 317, 333
Eriksson U., 899

Faivre-Bauman A., 333
Fan P., 515, 1287
Fehér O., 105
Fernyhough P., 337
Fibiger H. C., 1049
Fillenz M., 87
Finch C. E., 425, 741
Fornaretto M. G., 65
Fotuhi M., 569
Fremeau R. T. Jr, 65
Freudenberger U., 1293
Frisch C., 1093
Fukunaga K., 695
Fuxe K., 843

Gallop P. M., 399
Garcia C., 1201
Gardner G. J., 399
Gaveriaux-Ruff C., 635
Gebhart G. F., 351
Geffard M., 145
Gehrke D., 361
Gérard C., 721
Giacobini M. M. J., 899
Gibbins I. L., 241
Gibson I. C., 205
Gingrich J., 721
Gioannini T. L., 829
Gonon F., 641, 647
Gonzalez B., 1147
Goshima Y., 145
Goto S., 695, 793
Gozlan H., 721
Góngora-Alfaro J. L., 441
Grace M. S., 615
Grant G., 539
Green P. G., 345
Grichtchenko I. I., 1057, 1071
Guillery R. W., 1307
Gustafsson J.-Å., 843
Guth P. S., 963

Hamon M., 721
Happe H. K., 929
Hasenöhrl R. U., 1093
Heavens R. P., 407
Hernández-López S., 441
Hill R. G., 407
Hiller J. M., 829
Hirsch E. C., 449
Ho T., 345
Hofer W., 695
Holmes C. J., 1155, 1179
Holsboer F., 265
Hökfelt E. W. T., 189
Hökfelt T., 217
Huber G., 15
Huston J. P., 1093

Ichikawa A., 919
Inglis F. M., 1049
Inglis W. L., 51
Ingram C. D., 783
Isacson O., 989
Itano T., 507
Iversen S. D., 407
Izumi F., 803

Janik D., 273
Javoy-Agid F., 449
Jensen F. E., 399
Jiang T., 425
Johnson S. A., 741
Jones B. E., 1155, 1179
Jones S. A., 1313

Kalivas P. W., 41
Kaneko W. M., 759
Kastner A., 449
Keja J. A., 281
Kenney M. A., 553
Kharazia V. N., 983
Khasar S. G., 345
Kia H. K., 721
Kieffer B., 635
Kits K. S., 281
Koistinaho J., 1079
Kolomietz B. P., 771
Korematsu K., 695
Kouvelas E. D., 955
Köhr G., 975
Krappmann P., 1093
Krieglstein K., 361
Kuhnt U., 391

Lachmund A., 361
Lamas J. A., 115
Langlois X., 721
Laquerriere A., 1147
Le Cavorsin M., 1201
Le Moine C., 635
Lee M. G., 1033
Lees G. M., 1257
Leroux P., 1147
Levine J. D., 345
Lindholm D., 625
Ling K. H., 581
Liou H. H., 581
Loctin F., 93
Logan S. D., 205
Lopez A. L., 759

Loudes C., 333
Lovick T. A., 177
Lovinger D. M., 31
Löffler J., 15
Lukhanina E. P., 771
Lund R. D., 481
Lundberg J. M., 189, 217
Luo C. B., 251
Luppi P.-H., 125
Luque J. M., 15
Lyons W. E., 569

Ma Q.-P., 327
Macvicar B. A., 371
Mainville L. S., 1155
Marcel D., 1201
Marshall K. C., 163
Martinez L., 115
Marty S., 1121
Martínez-Fong D., 441
Marugg R. A., 1
Maslowski-Cobuzzi R. J., 1103
Massa S. M., 1079
Mattia D., 655
Maubert E., 317
Mayer B., 241
McNeill T. H., 425
Meigel I., 631
de Mendonça A., 385
Merritt A., 31
Miele M., 87
Mihai R., 783
Mihara S., 1245
Mikkelsen J. D., 497
Mishra R. K., 307
Misu Y., 145
Mita T., 803
Mitsacos A., 955
Miyamoto E., 695
Mizuno N., 919
Modin A., 189
Mody I., 975
Morency M. A., 307
Morgan T. E., 741
Morris J. L., 241
Morrison J. H., 1
Moya K. L., 587
Mrosovsky N., 273
Murai Y., 803
Murakami T. H., 507
Murphy S., 351
Murrin L. C., 929

Nagahiro S., 695
Nakamura S., 145
Nakatsuka Y., 507
Nakki R., 1079
Namba T., 919
Napier T. C., 1103
Narumiya S., 919
Naveilhan P., 333
Negi T., 507
Negishi M., 919
Neugebauer V., 1293
Neveu I., 333
Nishi S., 1245
Nitsos I., 257
Norris C. H., 963

Okamura H., 145
Okret S., 843
Olson L., 899
Onteniente B., 333
Oyama T., 695

Page M. E., 125
Pakzaban P., 989
Parducz A., 93
Pasinetti G. M., 425, 741
Passani M. B., 1021
Patchev V. K., 265
Paxinos G., 553
Pelto-Huikko M., 217
Peng F. C., 581
Perreault P., 655
Peschanski M., 1121
Peters J. L., 929
Pickering A. E., 205
Pigarev I. N., 1237
Polosa C., 531
Prokopenko V. F., 771
Pugliese A. M., 1021
Pujol J.-F., 1201

Quirion R., 307

Raisman R., 721
Rajdev S., 667
Rees S., 257
Reyes D., 31
Reynolds I. J., 667
Ribeiro J. A., 385
Richards J. G., 15
Riederer B. M., 1
Rivero-Melián C., 539
Robertson B., 539
Robertson H. A., 945
Robledo P., 759
Rodionov V. A., 771
Rojik I., 105
Rosales M. G., 441
Rosenberg P. A., 399
Rosén L., 843
Rothe F., 1133
Rozovsky I., 741

Safieh-Garabedian B., 327
Sagar S. M., 1079
Sashihara S., 803
Saura J., 15
Schaible H.-G., 1293
Schambra U. B., 65
Schmidt H. H. H. W., 983
Schuligoi R., 407
Segundo J. P., 459
Sexton P. M., 257, 553
Sharp F. R., 1079
Shen W. Z., 251
Shi H., 813
Shiekhattar R., 523
Shigemoto R., 919
Shimada M., 507
Shoaib M., 265
Sik A., 1033
Simon A., 899
Simon E. J., 829
Siniscalchi A., 655
Sirinathsinghji D. J. S., 407
Slama A., 317
Snyder S. H., 569
Sofroniew M. V., 625
Spanswick D., 205
Starke K., 1309
Steele P. A., 241
Steiner J. P., 569
Stelzer A., 813
Stettler O., 587
Stezhka V. V., 177
Stiber M., 459
Stiller R. U., 1293
Stone E. A., 829
Storm-Mathisen J., 1133
Suaud-Chagny M. F., 641, 647
Sugimoto Y., 919
Swanson R. A., 1079
Swoboda R., 631

Tavitian B., 587
Tayot J., 1147
Theodosis D. T., 291
Toldi J., 105
Tomaiuolo F., 655
Tomlinson D. R., 337
Tramu G., 317
Tsai M. C., 581
Turgeon S. M., 601

Ubink R., 217
Unsicker K., 361
Ushio Y., 695, 793

Valentino R. J., 125
Van Bockstaele E., 125
Van Leeuwen F. W., 1003
Vantini G., 333
Vasko M. R., 1279
Vaudry H., 1147
Vergé D., 721
Verhofstad A., 217
Vibert J.-F., 459
Vickers J. C., 1
Viollet C., 317
Voloshin M. Ya., 771
Voronin L. L., 391
Vrang N., 497

Wakerley J. B., 783
Wang H., 539
Watanabe M., 507
Weight F. F., 1287
Weinberg R. J., 983
Weissmann , 1201
Weldon P., 531
White S. R., 41
Wiley R. G., 1033
Wikström A.-C., 843
Williams A. P., 399
Willoughby D. A., 741
Winn P., 51
Winter J., 327
Wookey P. J., 553
Woolf C. J., 327

Xiong H., 163

Yamada K., 695, 793
Yanagihara N., 803
Yew D. T., 251
Young M. J., 481
Yue J.-L., 145

Zahraoui A., 587
Zavitsanou K., 955
Zetterström R. H., 899
Zhang Y., 829
Zhu Y., 125
Zoli M., 843

INTERNATIONAL BRAIN RESEARCH ORGANIZATION
World Federation of Neuroscientists
Incorporated as an independent international organization
Ottawa 1961

D. P. Purpura (U.S.A.)	*President*
M. Ito (Japan)	*Honorary President*
D. Ottoson (Sweden)	*Secretary-General*
B. A. Milner (Canada)	*Executive Secretary*
P. Strata (Italy)	*Treasurer*
P. Strata (Italy)	*Director, Workshop and Symposia Programme*
A. D. Smith (U.K.)	*Director, Publications Programme*
E. S. Vizi (Hungary)	*Director, Fellowships Programme*
C. Blakemore (U.K.)	*Managing Editor, IBRO News*

Secretary-General
Prof. D. Ottoson
51, Bd. de Montmorency
75016 Paris
France

Executive Secretary
Prof. B. A. Milner
Montreal Neurol. Inst.
3801, University St.
Montreal, Quebec,
Canada H3A 2B4

IBRO Secretariat
Executive Director
Ms Olga Popoff
51, Bd. de Montmorency
75016 Paris
France

IBRO NEUROSCIENCE CALENDAR

The International Brain Research Organization publishes a calendar of events in the neurosciences. It is hoped that the calendar, which is published in *IBRO News*, will help scientists in the field to plan ahead for the meetings they wish to attend. The aim of the calendar is to contain as many announcements as possible of forthcoming scientific meetings in the neurosciences throughout the whole world. It is in a form suitable for mounting on a wall.

IBRO invites organizers of meetings to send information on their meetings, together with a statement as to whether the date is definite or provisional, to: Office of *IBRO News*, University Laboratory of Physiology, Parks Road, Oxford OX1 3PT, U.K.

PRINTED IN ENGLAND BY BPC WHEATONS LTD, EXETER